Replace the paragraph beginning at page 1, line 10, with:

Various types of controllers such as a programmable logic controller (PLC) and a motion controller have been utilized to configure well-known automated machines including, for example, machine tools in the art of factory automation, industrial automated machines such as industrial robots, self-controlled robots, and typical automated machines. Further, the controller is connected with various types of input devices including a sensor and a switch for inputting signals thereto, also with many kinds of output devices including a motor and a display to be controlled thereby. Also, a program in the form of software describing commands (instructions) for the input and output devices (i.e., I/O devices) is installed in the controller. The automated machines are operated upon receiving the commands described in the software program.

Replace the paragraph beginning at page 1, line 25, with:

As indicated above, the input and output devices are connected to Input/Output connectors (i.e., I/O ports) of the controller. In case where the conventional controller is utilized, first of all, a programmer of a controller needs to precisely recognize which of the I/O ports is connected with which one of I/O devices, and then sets up software modules or operation programs for I/O devices implemented within the controller. Otherwise, the controller can not send appropriate commands to the I/O devices so that the controller fails to control the I/O devices. Such software modules include, for example, a device driver.

Replace the paragraph beginning at page 2, line 12, with:

The aforementioned disadvantage has not been solved up to the last couple of years, in which an expansion card and a peripheral device are connected with a conventional PC (personal computer). Such a peripheral device is also referred to as an object to be controlled or simply as an object. The user must exactly understand the connections between I/O ports located on the PC and peripheral devices, then, the user

may properly install software modules and/or operation programs for the I/O devices to be executed with the PC.

Replace the paragraph beginning at page 2, line 22, with:

Meanwhile, another type of the interface has recently been developed with a concept of "Plug and Play (PnP)" for connection between the PC and the peripheral devices. The above-mentioned PnP interface is, for example, "USB (Universal Serial Bus)" or "IEEE1394 (Institute of Electrical and Electronics Engineers 1394)" standards. In fact, use of the PnP interface reduces a burden of the user. Each of peripheral devices having the PnP interface is assigned a unique identification, named "GUID (Global Unique ID)".

Replace the paragraph beginning at page 3, line 7, with:

As described above, the GUID identification is globally unique and individually assigned to each object. Suppose that the PC has already stored a predetermined number of software modules such as device drivers for driving corresponding objects. Once the I/O object is connected with the PC, the PC acquires the GUID of the I/O object. Then, the PC automatically identifies the corresponding software module according to the GUID so as to drive the I/O device. Therefore, this eliminates the need for the user to select and set up a suitable software module such as a device driver. To this end, the user may not even be aware of the fact that the software module is installed within the PC, while the user can connect with the I/O device to utilize it. Yet, even though the user has to input and store the option parameters of the software module, this task may also be avoided if the predetermined initial values thereof are used.

Replace the paragraph beginning at page 3, line 24, with:

Also, the standards of USB and IEEE1394 have another function based upon the concept of "Hot Plug". The conventional PC is required to shut down and be rebooted to activate a software module that is newly installed for an additional device. The Hot Plug enables the user to connect another device to the PC without shutdown so that almost no task is required for connecting the device with the PC. Thus, the user undertakes much less burden than that in utilizing the conventional PC.

Replace the paragraph beginning at page 4, line 9, with:

The PnP interface such as the USB and/or IEEE1394 standards has another feature. That is, the communication protocol of the PnP interface is open to the public. In other words, the communication protocol thereof is public. This allows various third parties to develop peripheral devices for the PC. Connection of the conventional PC with a peripheral device requires an expansion board, such as a particular connecting board, for connecting therebetween, however, the feature of publicity eliminates this trouble.

Replace the paragraph beginning at page 4, line 19, with:

The aforementioned feature of publicity is realized in the communication protocol between the PC and the peripheral device. Besides, demand has been increased so that the feature of publicity is realized on the communication protocol between the controller and the peripheral device. Various controllers have been proposed such that they include interfaces such as the USB and/or IEEE1394 standards with the feature of the publicity.

Replace the paragraph beginning at page 5, line 2, with:

As described above, the recent controllers and PCs are going to support the PnP interface such as USB and/or IEEE1394 standards. However, the feature of the Plug and Play has not yet been exploited effectively enough to utilize the device instantly after connecting it to the PC or the controllers.

Replace the paragraph beginning at page 5, line 8, with:

Firstly, the operation of the peripheral device (object) controlled by the PC is described hereinafter. When the user, for example, moves a typical mouse as a peripheral device, a mouse cursor moves on the monitor in accordance with the actual movement of the mouse. Thus, the operation of the mouse cursor is preprogrammed and unmodified with the mouse and the PC. A USB camera is another example as the peripheral device, in which a particular software program for displaying images, taken by the USB camera, on the PC monitor is distributed with the USB camera by the manufacturer thereof. The USB camera cannot be operated without using the software program. To this end, the operation manner of the peripheral devices and the operation environment of the PC are fixed and cannot be modified by the user (through instruction with program codes).

Replace the paragraph beginning at page 6, line 8, with:

Furthermore, even if the controller is adapted to use the interfaces such as USB or IEEE1394 standards, the controller has to be installed with the software module or the operation program implementing it, precisely as on the conventional controllers. Therefore, the advantage of the "Plug and Play" feature cannot be sufficiently exploited in those circumstances.